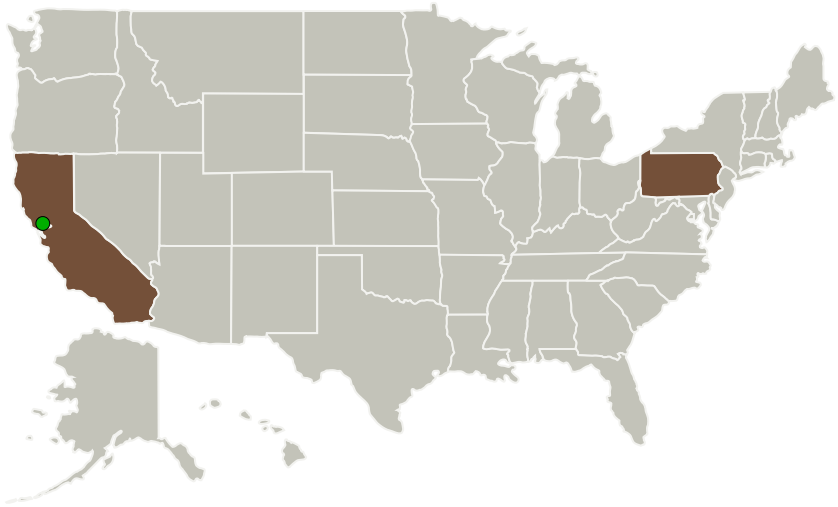
Handheld Electronics EHM Sensor Probe for Determination of Remaining Useful Life, Phase I

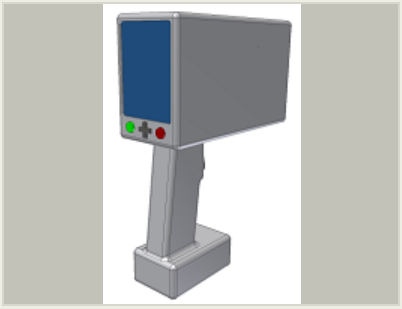
Completed Technology Project (2014 - 2014)

Project Introduction

National Aeronautical and Space Administration's (NASA) Aviation Safety Program "seeks capabilities furthering the practice of proactive safety management." Specifically, one of the key interests in Topic A1.04 are proposals for Remaining Useful Life prediction techniques. In response, Nokomis is proposing to develop an Electronic Health Monitoring (EHM) Sensor Unit which would be able provide accurate estimates of the Remaining Useful Life of avionic systems. This sensor module would identify changes in the unintended electronic emissions of various flight-system electronic components to determine the current health state and predict the future reliability of the scanned system. Designed as a handheld unit which would allow for system scans of components while installed in the aircraft, the EHM Sensor Unit would be capable of scanning and returning results in as little as 3 seconds per system scanned. This speed would allow for frequent maintenance monitoring, including during the brief turnaround periods experienced at the gate. This technology would allow NASA, as well as flight-system and aviation maintenance providers, to better monitor the electronic health of these critical avionic components, as well as better predict their future lifespan, allowing for systems to be repaired or replaced prior to an unanticipated failure.

Primary U.S. Work Locations and Key Partners





Handheld Electronics EHM Sensor Probe for Determination of Remaining Useful Life Project Image

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Organizations Performing Work	Role	Type	Location
Nokomis, Inc.	Lead Organization	Industry	Charleroi, Pennsylvania
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Pennsylvania

Project Transitions

June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140494)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Nokomis, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

William A Davis

Co-Investigator:

William J Davis

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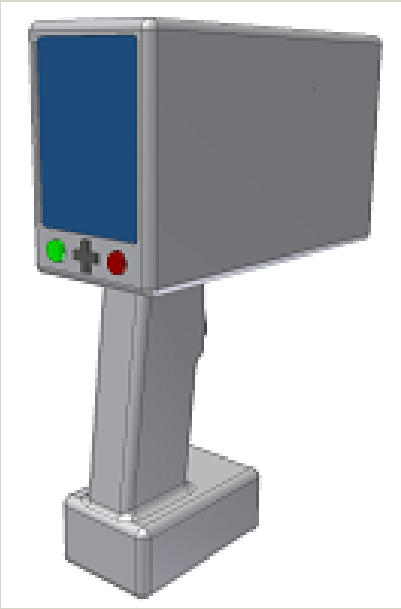
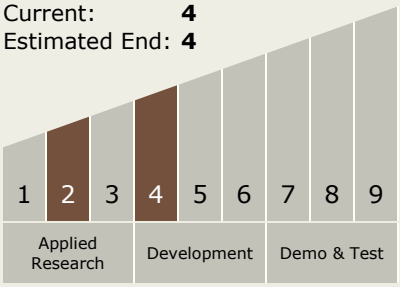
Images



Project Image
Handheld Electronics EHM Sensor Probe for Determination of Remaining Useful Life Project Image
(https://techport.nasa.gov/image/136213)

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
  - TX13.2 Test and Qualification
    - TX13.2.6 Advanced Life-Cycle Testing Techniques

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System